

## REMARKS

### I. Status of Claims

Claims 1-5, 8-12, 18, 20, 22-26, 38, 40, 41 and 44-47 are pending. Claims 6, 7, 13-17, 19, 21, 39, 42 and 43 have been canceled without prejudice to their prosecution in a future application. Claims 1, 8, 10, 11, 18, 20, 22, 23, 28, 40 and 41 are currently amended. Claims 27-37 have been withdrawn. Claims 44-47 are new.

Support for the amendments to claims 1, 8, 10, 11, 18, 20, 22, 23, 28, 40 and 41 can be found, for example, at ¶¶ [028], [072] - [073] and [080] of the specification. Support for new claims 44-47 can be found, for example, at Table I and Table II (pp. 18 and 19) of the specification.

Accordingly, Applicant submits that no new matter has been added by these amendments.

### II. Rejections Under 35 U.S.C. § 103(a)

The Office has rejected claims 1-13, 15-26 and 38-43 under 35 U.S.C. § 103(a), as allegedly being unpatentable over Rangwalla et al. (US 2003/0001108) in view of Pennaz (5,382,282). *Examiner's Answer*, p. 3 (see also *Final Office Action issued August 25, 2006*, p. 2). According to the Office, Rangwalla discloses a packaging material comprising a substrate, a lacquer coating on the substrate, and an ink print layer . . . wherein the lacquer coating is substantially identical to the claimed lacquer. *Id.* Pennaz allegedly teaches an electron beam curable ink composition for printing. *Id.* at p. 4.

Specifically, the Office alleges that even though Rangwalla does not teach the use of an electron-beam curable ink composition as claimed by Applicant, Pennaz

teaches the use of such electron-beam curable inks. According to the Office, "[t]he motivation for combining Rangwalla and Pennaz is the need for the use of electron beam curable ink composition to be applied on a layered material." *Id.* at p. 5. The Office further alleges that the combination of Rangwalla and Pennaz would necessarily result in "some kind of physical or chemical bonding or attachment to keep the layers together" because "both the ink and the lacquer are cured by the same method of curing." *Id.* at pp. 5-6. Applicant respectfully disagrees for at least the following reasons.<sup>1</sup>

Initially, Applicant notes that claims 7, 13-17, 19, 21, 39, 42 and 43 have been canceled. Accordingly, the Office's rejection of these claims is rendered moot. In addition, claims 1, 8, 10, 11, 18, 20, 22, 23, 28, 40 and 41 have been amended to focus the claims on layered materials that include an ink formulation comprising air or thermally dried or dryable inks and at least one energy curable monomer. These claims have also been modified to focus on layered materials that specifically exhibit "chemical bonding" between the ink formulation and lacquer layer.<sup>2</sup>

In making a rejection under 35 U.S.C. § 103, the Examiner bears the initial burden to establish a prima facie case of obviousness. *Ex parte Clapp*, 227 U.S.P.Q.

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<sup>1</sup> The arguments set forth herein are offered in conjunction with those previously provided by Applicant in the Response After Final filed on November 27, 2006, Pre-Appeal Brief Conference Request filed on March 9, 2007, and Appeal Brief filed on June 16, 2007, all of which are hereby incorporated by reference in their entireties. Accordingly, the remarks and arguments discussed herein should properly qualify as a "submission" under 37 C.F.R. § 1.114 and M.P.E.P. § 706.07(h)(II).

<sup>2</sup> As defined in the specification, the term "bonding" may refer to materials that are "chemically bonded." For example, "bonding" may include covalent bonds formed between at least a portion of each of the polymers. *Specification*, ¶ [028] (emphasis added). "Bonding" also refers to the "interpenetrating network of chemical bonds that exists throughout the ink formulation/lacquer structure. *Id.* (emphasis added). Additionally, "bonding" is used to reference the crosslinks that form "between" the first polymer of the ink formulation, and the second polymer in the lacquer." *Id.* (emphasis).

972, 973 (Bd. Pat. App. & Inter.); see also M.P.E.P. § 2142. To meet this burden, the Examiner must point to some "need or problem known in the field of endeavor at the time of the invention and addressed by the patent" that would have provided a person of ordinary skill in the art a "reason for combining the elements in the manner claimed." *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1389-1390 (2007). "[A] design need or market pressure to solve a problem" may provide the requisite motivation to combine the claimed elements if a person of ordinary skill pursues a predictable solution that eventually leads to the anticipated success. *Id.* at 1390.

In addition, the Office must show that the prior art references teach or suggest all the claim limitations to properly support a rejection under Section 103. *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Thus, assuming, arguendo, that the Office has correctly concluded that one of ordinary skill in the art would have seen a benefit in combining the prior art references, a rejection under 35 U.S.C § 103 will fail if the Examiner has not established the presence of each and every claim limitation. See, e.g., *Ex parte Levy*, 17 U.S.P.Q.2d 1461 (Bd. Pat App. & Inter. 1990).

Applicant respectfully contends that the Office has failed to establish that Rangwalla and Pennaz, alone or in combination, teach or suggest a product or a composition that includes an ink formulation comprising "an air-dryable or thermally-dryable ink and at least one energy-curable monomer." Applicant further contends that neither Rangwalla or Pennaz, alone or in combination, disclose layered materials comprising the claimed ink formulation and a lacquer layer "wherein at least a portion of said ink formulation and at least a portion of said lacquer are selected to permit at least some chemical bonding to each other" as recited in, for example, claim 1 upon which

pending claims 2-5, 8-12, 44 and 46 depend. Further, the Office has failed to establish that Rangwalla and Pennaz, alone or in combination, teach or suggest a product or a composition that includes an ink formulation comprising "an air-dried or thermally-dried ink and at least one energy-curable monomer," and a lacquer layer "wherein at least a portion of said ink formulation and at least a portion of said lacquer are chemically bonded to each other" as recited in, for example, claim 20 upon which claims 18, 22-26, 45 and 47 depend. Accordingly, the combined teachings of Pennaz and Rangwalla fail to teach each and every limitation of the pending claims.

The Office has also failed to identify an implicit or explicit reason to modify or combine the teachings of Rangwalla and Pennaz in an attempt to arrive at the presently-claimed invention. The Office alleges "[t]he motivation for combining Rangwalla and Pennaz is the need for the use of electron beam curable ink composition to be applied on a layered material." *Examiner's Answer* at p. 5 (emphasis added). However, Applicant respectfully contends that a person of ordinary skill in the art would not look to the ink compositions disclosed in Pennaz because the presently-amended claims do not comprise electron-beam curable inks. Instead, the instant claims comprise inks that are transformed from a liquid state to a solid state by air drying or thermal drying methods. In that respect, the teachings of Pennaz are inapposite to Rangwalla.

Applicant further contends that a person of ordinary skill in the art would readily appreciate the stark difference between the presently-amended claims and the combined teachings of Rangwalla and Pennaz. Applicant submits that the pending claims include ink formulations comprising energy-curable (i.e. polymerizable)

monomers or polymers derived from such monomers. However, the presence of these monomers in the ink formulation does not affect the ink's ability to dry/solidify in the absence of EB radiation, as the instant claims are specifically directed to air-dryable and thermally-dryable inks. In that same vein, nothing in Pennaz suggests that the energy-curable ink compositions described therein could be cured (i.e. set and/or dried) by means other than radiation/EB curing. Moreover, Applicant contends that the skilled artisan would recognize that the energy-curable inks disclosed in Pennaz could not be dried/solidified by means of air or thermal drying because they necessarily require a source of radiation to properly cure/dry.

Finally, the Office has failed to show that, in view of Rangwalla and Pennaz, a skilled artisan would be motivated to combine an air-dryable or thermally-dryable ink and at least one energy curable monomer with a substrate and a lacquer to yield the claimed layered materials. In fact, Applicant contends that Pennaz teaches away from such combinations. For example, Pennaz explains that there are two traditional ink systems that differ primarily in the ways that the inks are cured or dried. In an oleoresinous system, inks are "set or dried by oxidation, absorption of the oil into the substrate, or solvent evaporation." *Pennaz*, col. 8, ll. 54-57. In that system, the vehicle is comprised of resins and oils or solvents. *Id.* at col. 8, ll. 57-60. In radiation curable ink systems, the resins and oils or solvents "are replaced by polymerizable components such as acrylate functional oligomers and monomers known in the art." *Id.* at col. 8, ll. 60-64 (emphasis added). Accordingly, Pennaz clearly teaches away from the addition of energy-curable monomers to traditional ink systems (e.g. solvent-based) that require air or thermal drying.

Thus, without any guidance, it would not have been obvious to modify the teaching of Pennaz to arrive at ink formulations comprising air or thermally dried inks and at least one energy curable monomer or polymer derived from such monomers. Even assuming, for argument's sake, that Pennaz implicitly taught such ink formulations, a skilled artisan would not have been motivated to combine those teachings with Rangwalla to arrive at the claimed layered materials which exhibit chemical bonding between the ink formulation and the lacquer layer.

Accordingly, for at least these reasons, the Examiner has failed to establish the requisite motivation to combine the references cited in the rejection of the present claims.

**III. Conclusion**

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims. If the Examiner has any questions, regarding this Amendment and Response, the Examiner is invited to contact the undersigned at 617-452-1619.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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